Systeme Helmholz®
compatible with you

SSW7-TS with analog Modem

TeleService via the MPI Bus

Version: 6 / 2005-11-29

for HW 6a / FW 2.07 or higher

Order number: 700-751-8MD21

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Design

With the SSW7-TS with modem, teleservice of a system can be performed via the MPI bus.

The SSW7-TS with modem has a 1.2 m long connecting cable which can be directly plugged into the CPU connector of the programmable controller or at any other point in the MPI network.

An analog 56K modem prepared for use in many countries worldwide is integrated into the housing of the SSW7-TS.

The 9-pole SubD-connector can be used for parameterization or can be connected for local usage as a pc converter. The switch “Int./Mdm./Ext.” changes between the internal modem and the RS232 interface. If the switch is in position “Int.” the SSW7-TS is working directly with the modem, then the RS232 interface has no function.

If the switch is in position “Ext.” the LED is green. In this mode it is possible to use SSW7-TS with modem as a normal PC adapter, the modem is switched off.

If the switch is in position „Mdm.“ the LED is red, by the described connection cable the modem can be used directly from the PC via the RS232 interface. In this position the MPI-Bus mode is switched off.

The SSW7-TS with modem receives its power supply from the CPU via the MPI cable. If 24V are not available at the point of connection or if several MPI adapters are connected to a CPU at the same time, 24V can be input from an external source.

The connection to the MPI bus can be extended with an additional cable. For that purpose, Systeme Helmholz GmbH offers the following products:

MPI bus extension cable, 5m	700-751-6VK11
MPI bus extension cable, 10m	700-751-6VK21
MPI bus extension cable, special length	700-751-6SO11

When extending the MPI bus, please follow the relevant configuring guidelines as defined in the documentation of your PLC.

The DIN-rail clip for the SSW7-TS with integrated modem can be ordered additionally by the PN: 700-751-HSH10.

FM35x modules can not currently be parameterized with the SSW7-TS. Project transfer with ProTool via a modem link is also not possible.

LED displays

The three LED s on the top of the device provide you with information about the operating status of the SSW7-TS with modem. You can use them to locate sources of error quickly.

The LED s have three different states: Off, on, blinking. If the LED is off, none of the labeled states applies.

LED "Power" off:	The adapter has no power or is faulty
LED "Power" on:	The adapter is being powered with 24V and the processor is running
LED "Active" on:	The SSW7-TS has parameterized the modem and registered in the MPI network
LED "Connect" on:	The SSW7-TS has established a connection
LED "Connect" flashing:	The SSW7 is transmitting data
LED "OH" on:	A call is being switched through
LED "DCD" on:	A connection is being established with a modem
LED „RS232“ off:	The internal modem works with the SSW7-TS, the RS232 interface is switched off
LED „RS232“ green:	The internal modem is switched off and the RS232 interface can be used (for parameterize or for usage as pc-converter)
LED „RS232“ red:	The internal modem can be used via the RS232 interface directly by a pc

If the SSW7-TS with modem that is on the system is connected to the modem and the PLC, it will establish contact with the MPI bus as soon as the internal modem has been successfully initialized. The LED "Active" should light up after a short time.

If only the LED "Power" lights up, either the modem has not responded to initialization with "OK", or the SSW7-TS with modem has not joined the MPI bus (wrong MPI address ?).

Connection possibilities:

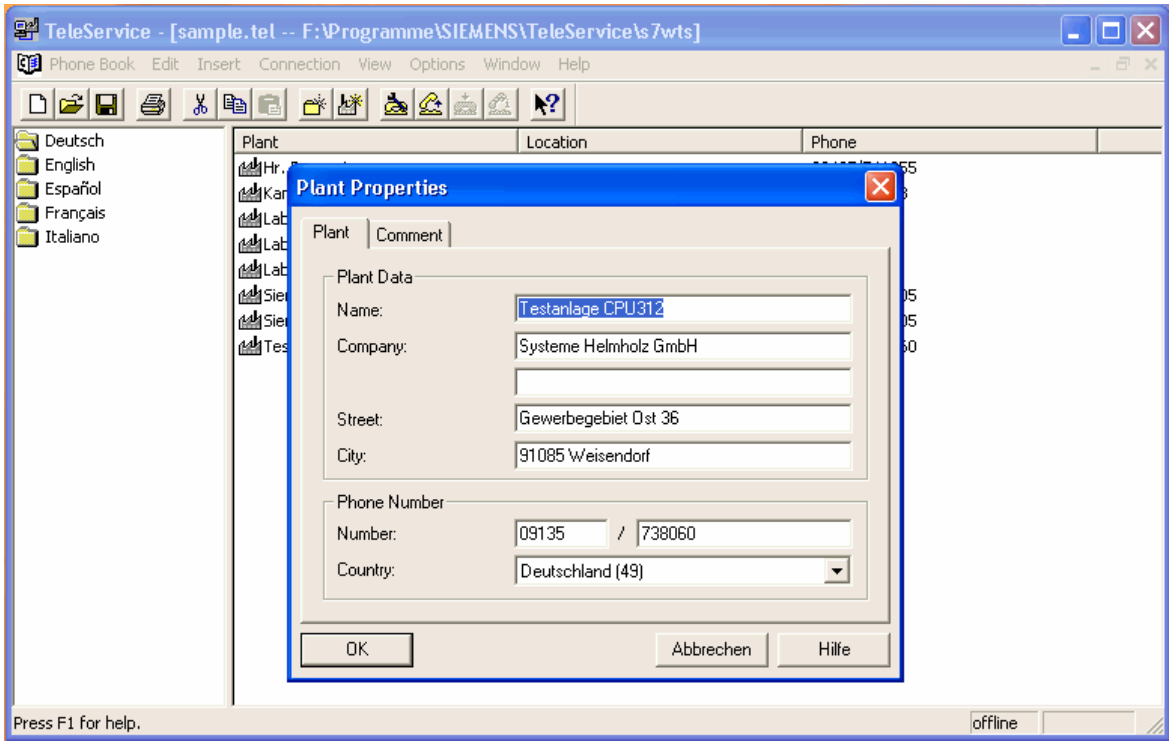
	analog	ISDN	GSM
analog	yes	no	yes
ISDN	no	yes	yes
GSM	yes	yes	yes

Parameterization

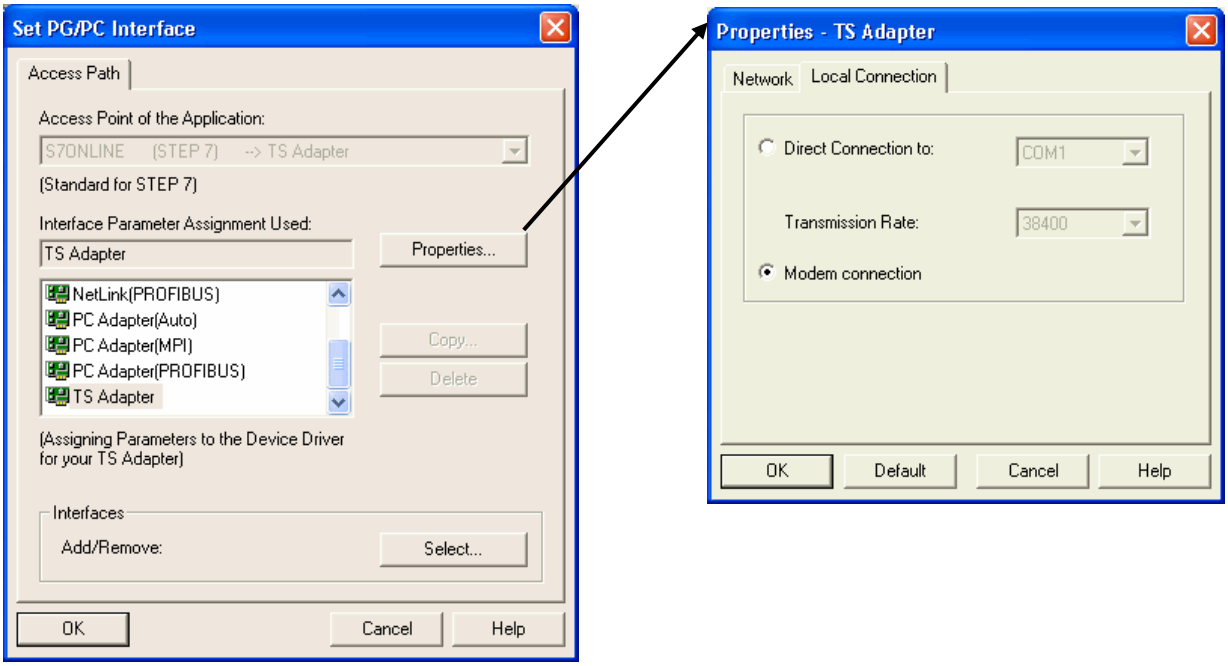
The SSW7-TS with modem settings are always defined in the software used for communication with the programmable controller.

In most cases, you will also need an additional software module for your programming software, e.g. TeleService from Siemens (version 3.0 and later), to parameterize the SSW7-TS with modem and operate the connection (telephone book of dialable systems).

Example: Setting up a system



Example: Dialing up the SSW7-TS



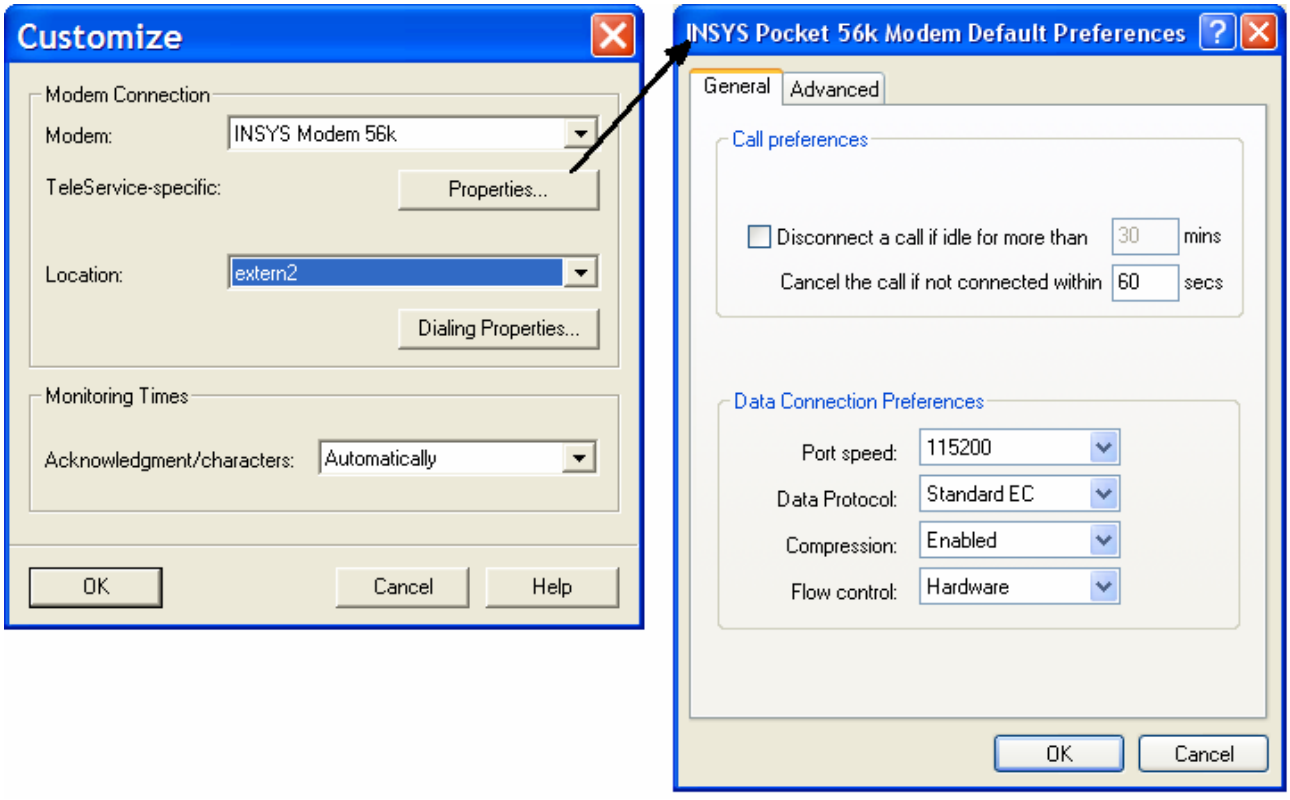
Installing the local modem

If you have already installed a modem under Windows, you can also use this modem for teleservice.

Plug-and-play modems are automatically recognized by the PC and integrated in the system as soon as they are connected. The driver supplied with the modem is required for this. You can manually install modems without plug-and-play capability via the control panel under the "Telephone and modem options" in the "Modems" dialog box. Here again, you will need the driver supplied with the modem.

It should be possible to address the modem as soon as you have installed it on one of the COM interfaces of your PC. Select the installed mode in the parameterization of the programming software.

Example: Setting the local modem



For safety reasons, "Forced EC" error detection must always be activated.

In the case of a link without error checking, sporadic broken connections can occur!

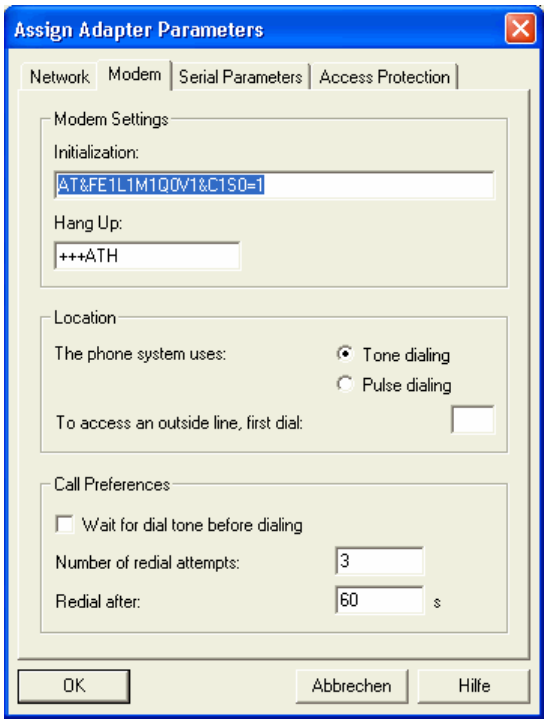
You can call our SSW7-TS test application, for testing your teleservice software and the modem connected to your PC. Please ask our support for the phone number.

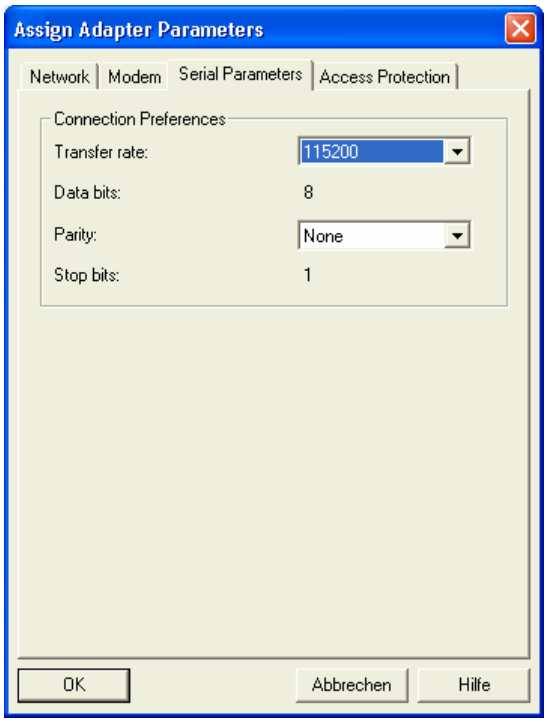
Installing and parameterize the modem in the system

The SSW7-TS with modem initializes the internal modem after switch-on to make it ready to receive calls. An initialization string is stored in the SSW7-TS for that purpose. This string can be changed with the software.

Parameterization is possible both locally at the workstation ("Direct connection") and for an existing phone connection ("Modem connection").

Example: Parameterize the SSW7-TS





The "PG_DIAL" and "AS_DIAL" functions for starting a call from an S7-CPU are currently not implemented.

Please consult the programming software manuals for further information.

The SSW7-TS with modem can also be used as a normal "PC adapter" without the teleservice software. The "Int./Mdm./Ext." switch can switch from the internal modem to the RS232 interface. It is possible to connect a PC with a standard commercial type null modem cable. The SSW7-TS with modem automatically detects the mode ("Modem mode" / "Direct connection" / "PC adapter").

Modem setting / initialization string

The internal modem of the SSW7-TS with modem is automatically initialized on power-on or connection. During initialization, the initialization string that has been entered in the TeleService software is sent to the modem and a positive response ("OK") is awaited.

AT &F E1 L1 M1 Q0 V1 &C1 S0=1

AT	Introducing modem commands
&F	Load factory configuration
E1	Echo input is ON
L1	speaker low volume
M1	speaker ON
Q0	Quiet control send messages to the PC
V1	Style of modem message in long form
&C1	DCD follows the telephone line carrier signal
S0=1	one ring to auto answer

If the SSW7-TS with modem is used outside Europe, the following initialization string should be used:

AT+**GCI=*xx;***E1L1M1Q0V1&C1S0=1

"*xx*" stands for the country code.

Country codes for the internal modem

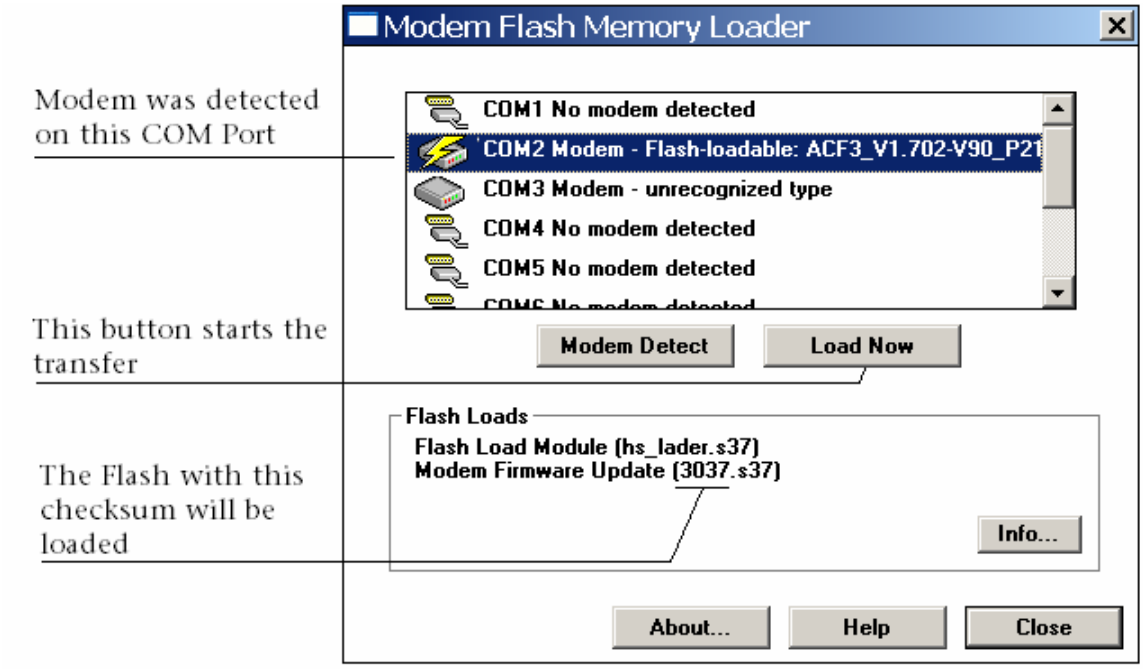
	standard group of countries	extended group of countries
Europe TBR21	FD (Default)	FD (Default)
Albania		B8
Algeria	FE	
Andorra	FD	FD
Argentinia		07
Australia	09	
Austria*	0A	FD
Bangladesh	FE	
Belarus	FE	
Belgium*	0F	FD
Birma (Myanmar)	FE	
Bolivia	FE	
Bosnia-Herzegowina	FE	
Brasil	16	
Brunei	FE	
Bulgaria		1B
Cambodscha	FE	
Canada	20	
Chile		25
China		26
Columbia		27
Corea (Republic)		61
Costa Rica	FE	
Croatia		FA
Cyprus		2D
Czechia	2E	
Denmark*	31	FD
Domenican Republic		33
Ecuador	FE	
Egypt		36
El Salvador	FE	
Estonia		F9
Finland*	3C	FD
France*	3D	FD
Germany*	42	FD
Great Britain*	B4	FD
Greece*	46	FD
Guatemala	FE	
Honduras	FE	
Hong Kong		50
Hungary	51	
Icland*	52	FD
India		53
Indonesia		54
Ireland*	57	FD
Israel		58
Italy*	59	FD
ITU/Taiwan	FE	
Japan	00	
Jemen	FE	
Jordania	FE	

Kuwait		62
Laos	FE	
Latvia	FD	FD
Lebanon		64
Liechtenstein*	FD	FD
Lithuania	FE	
Luxembourg*	69	FD
Macedonia	FE	
Malaysia		6C
Mexico	73	
Monaco	FD	FD
Montenegro	FE	
Morocco	FE	
Netherlands*	7B	FD
New Zealand		7E
Nicaragua	FE	
Nigeria		81
Norway*	82	FD
Oman	FE	
Pakistan		84
Panama		85
Paraguay		87
Peru	FE	
Philippines		89
Poland	8A	
Portugal*	8B	FD
Romania	8E	
Russia		B8
San Marino *	FD	FD
Saudi Arabia	98	
Senegal		99
Serbia	FE	
Singapore		9C
Slovakia	FB	
Slovenia	FC	
South Africa		9F
Spain*	A0	FD
Sri Lanka		A1
Sweden*	A5	FD
Switzerland*	A6	FD
Taiwan	FE	
Thailand		A9
Tunisia	FE	
Turkey	AE	
Ukraine	FE	
United Arab Emirates		B3
Uruguay		B7
USA	B5	
Venezuela		BB
Vietnam	FE	

***** The standard TBR21 (FD) applies to all public telephone networks in this countries. Explicit settings of the specific country code (in the standard-firmware) is only required for old Tk exchanges.

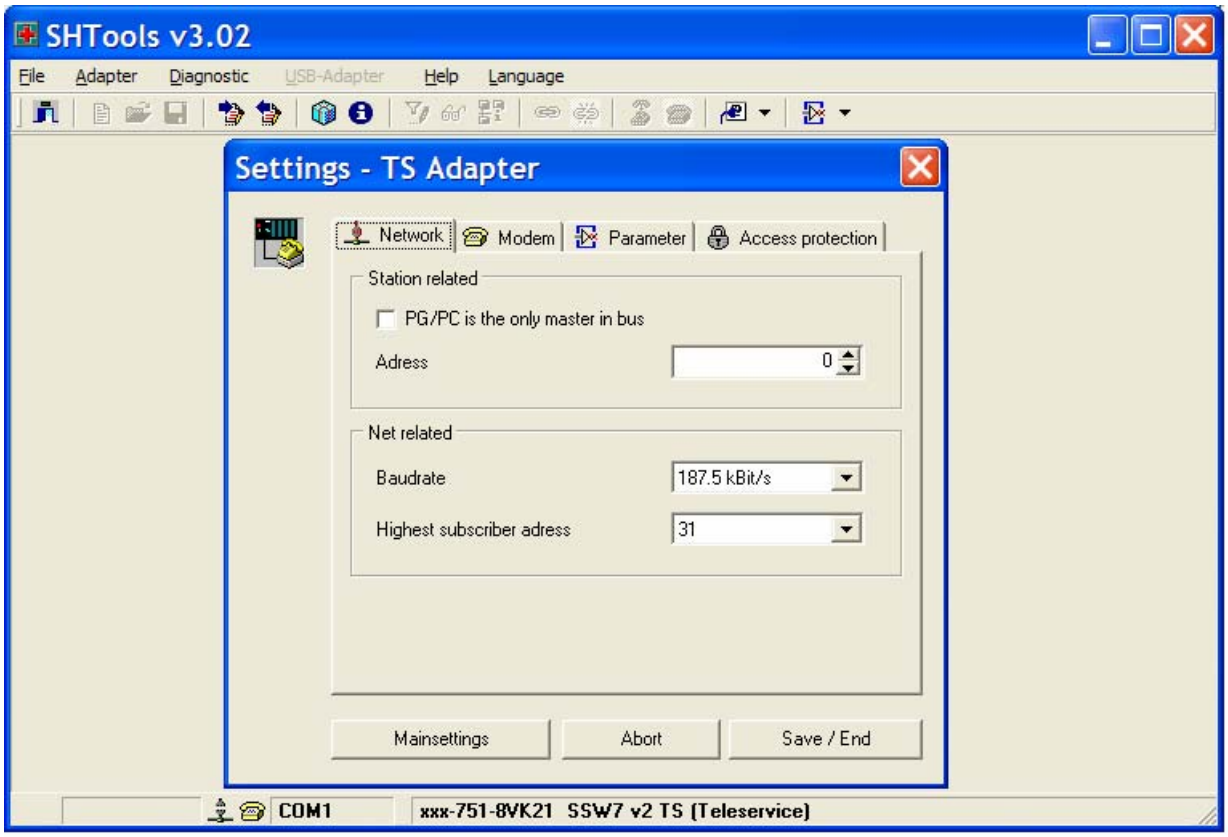
Flash Loader

You can find the flashing tool on the included CD. Put the micro switch in the middle position, connect the adapter with a serial COM port and start the FLASHCOM.EXE from the right firmware folder.

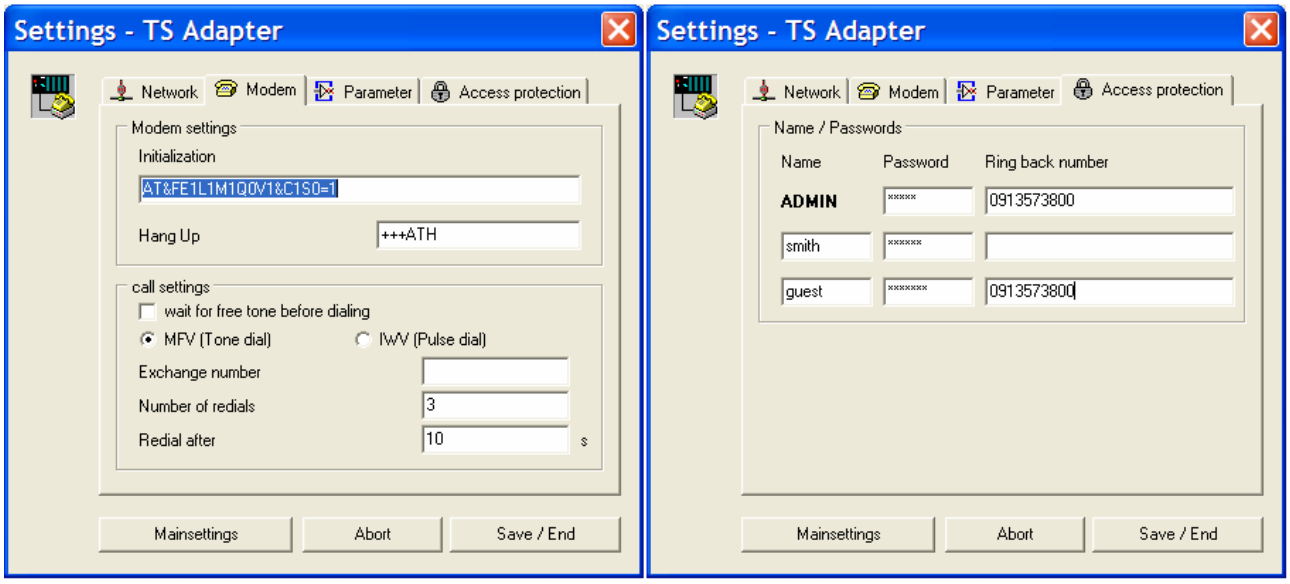


SSW7-TS parameterization software

With the "SSW7 Tool V3", it is possible to pre parameter an SSW7-TS with any computer, even if there is no parameterization software or TeleService software installed on that computer.



Once set, parameters can be stored on the computer in a file and transmitted to further SSW7-TS's.



The "SSW7 Tool V3" can be downloaded from our download area at www.helmholz.de.

Speed up driver for Win 2000 and XP

In direct mode the SSW7-TS can work with 115Kbaud. Therefore you have to install the Speed-up driver V3.0. The actual version is available at www.helmholz.de.

Is there an older high speed driver running you MUST close AND uninstall this before continuing!

The Speed-up tool creates a new serial COM port. The driver brings the data transfer from the virtual to the physical COM port and vice versa.

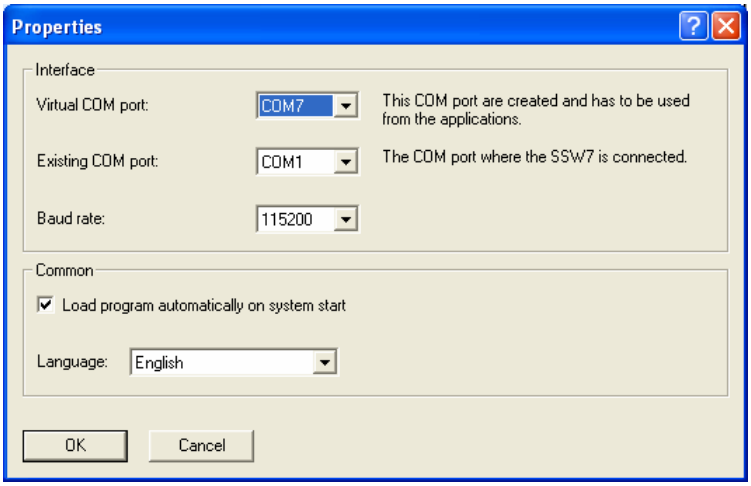
After the installation start the driver via the symbol in the start menu. There is only an additional symbol in the systray.

Right click to symbol opens the context menu for the properties.

1.) Activate the new virtual COM port in the dialog box.

2.) Set the COM port where the SSW7-TS is plugged in.

3.) Set the baud rate you want to use.



Select the „OK“ button to activate the driver.

This new COM port has to be used from your applications now. For more details please see the documentation for SSW7 driver software.

Right click to symbol opens the menu - select „end“ for deactivating the Speed-up tool.

Technical data

Order number	SSW7-TS with modem 700-751-8MD21
Dimensions	135 x 67 x 30 mm (LxWxH)
Weight	approx. 240g (incl. cable & connector)
MPI interface	
Type:	RS485
Transmission rate:	19.2 kbps or 187.5 kbps
Cable:	1.2m, *no terminating resistors*
Connection:	Connector, SUB D 9-way
Modem connection	
Type:	analog modem connection
Connection:	RJ-11 socket
Transmission Standards/Protocols	
V.90, V.34+, V.34, V.32bis, V.32, V.22, V.22bis, V.21, V.23, BELL standard 103, 212	
Fax class 1 and 2	
Data compression according to MNP2-4, V.42 LAPM, MNP 10, 10EC	
Error correction according to MNP5 and V.42	
Communication interface	
Type:	RS232, serial asynchronous
Transmission rate:	9.6 kbps to 115 kbps
Connection:	Connector, SUB D 9-way
Power supply	
Voltage:	+24V DC ±25%, from the programmable control or external power supply
Power supply:	80mA (typ.) / 100mA (max.)
Degree of protection	IP 30
Electromagnetic compatibility (EMC)	
Interference emission	Class B to EN55022
Interference immunity on signal lines	±2kV acc. to EN61000-4-4
Noise immunity ESD	±6kV contact discharge EN61000-4-2 ±8kV air discharge EN61000-4-2
RF radiation fields	10V/m acc. to EN61000-4-3
Conducted RF interference	10V acc. to EN61000-4-6
Climatic conditions	
Temperature operation	-20° C to +60°C
Temp. storage/transport	-20° C to +60°C
Relative humidity operation	5% to 85% at 30°C (no condensation)
Relative humidity storage	5% to 93% at 40°C (no condensation)
Special features	
Quality assurance	According to ISO 9001:2000
Maintenance	Maintenance-free (no battery)

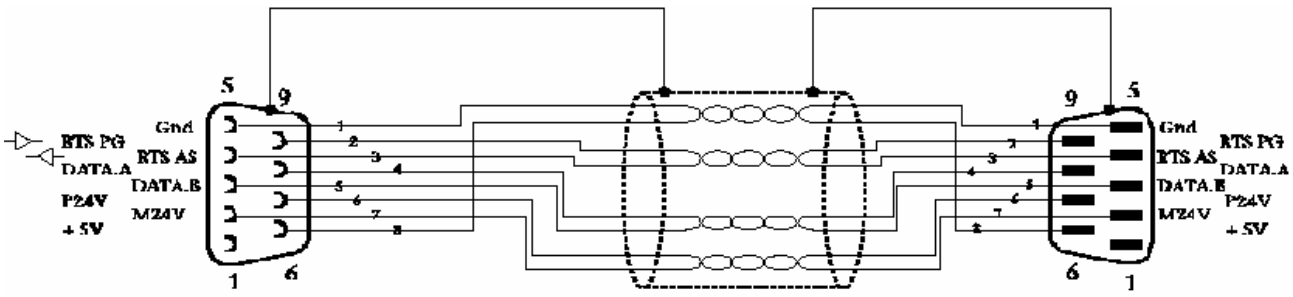
Pin assignment

Pin	SUBD connector PC	SUBD connector MPI
1	DCD	n.c.
2	Rx	M24V
3	Tx	DATA.B
4	DTR	RTS AS
5	GND	0V (M5V)
6	DSR	n.c.
7	RTS	+24V
8	CTS	DATA.A
9	RI	RTS PG

RJ11 Pins	Designation	Meaning
1 - left	LB1	looped-through phone connection
2 - center left	LB	phone line
3 - center right	LA	phone line
4 - right	LA1	looped-through phone connection

Connecting cable

MPI extension cable (700-751-6VKx1):



Pc to SSW7-TS for direct usage or usage of the modem (700-751-7VK81):